Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Amendment of Parts 2 and 97 of	)	
the Commission's Rules Regarding	)	RM-7747
an Allocation of the 216-220 MHz	)	
Band for the Amateur Services	)	

To: The Commission

COMMENTS OF MSTV

The Association for Maximum Service Television, Inc. ("MSTV")[1/] submits these comments pursuant to 47 C.F.R. § 1.405(a) in opposition to the petition for rule making in the above-captioned matter filed by The American Radio Relay League Inc. ("ARRL") on June 4, 1991 (the "Petition").[2/] The Commission should deny the Petition given the significant risk of interference to adjacent channel television operations presented by the proposed amateur operations, or at least postpone action until ARRL conducts proper tests to support its claim that there is no risk of such interference.

The Petition asks the Commission to issue a Notice of Proposed Rule Making to provide a secondary allocation for

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[1/] MSTV is a trade association representing over 250 commercial and noncommercial broadcast television stations throughout the United States on issues relating to the technical quality of the broadcast signal.

[2/] In an order released July 23, 1991, the Chief Engineer of the Office of Engineering and Technology extended the deadline for filing comments in this proceeding to October 23, 1991.

the Amateur Radio Service in the 216-220 MHz band. Such an allocation would be limited to point-to-point communications between fixed stations and would be used for wideband packet inter-city relays and auxiliary stations displaced from the 220-222 MHz band as a result of the reallocation of that segment in Docket No. 87-14.

ARRL acknowledges that such an allocation to the Amateur Radio Service in the 216-220 MHz band would create the potential for significant interference to broadcast television operations, specifically Channels 11 and 13. Petition at ¶¶ 23, 26-27. ARRL maintains that this interference can be prevented by adopting appropriate operating parameters such as distance and frequency separation restrictions. For instance, while suggesting that point-to-point operations above 218 MHz may be possible, ARRL concedes in the Petition that amateur operations within the 216-218 MHz band should be confined to areas "well outside the Grade B signal contours of Channel 13 stations." Petition at ¶ 27. ARRL also notes that amateur operations in the 216-220 MHz band will be restricted to point-to-point communications and rather ambiguously indicates that frequency assignments could be coordinated through a database administrator to ensure compliance with interference safeguards.[3/]

[3/] ARRL's proposed rule 97.303(e) merely states that "Prior to commencement of amateur operation in [the 216-220 MHz band], amateur stations <u>are cautioned</u> to contact a database administrator in the Amateur Radio Service for frequency recommendations, in order to avoid interference to

MSTV believes that a secondary allocation to amateur radio in the 216-220 MHz band is infeasible even with these purported interference safeguards. This band has become a major spectrum battleground, with the principal warriors being Interactive Video Data Service ("IVDS") and the Automated Maritime Telecommunications System ("AMTS"). See Notice of Proposed Rule Making, Gen. Docket No. 91-2, 6 FCC Rcd 1368 (1991) (IVDS); Report and Order, Gen. Docket No. 88-372, 6 FCC Rcd 437 (1991) (AMTS). Other parties are also clamoring for a piece of this band. See, e.g., ProNet, Inc. Petition for Rule Making, RM-7784 (July 30, 1991) (seeking allocation of spectrum in the 216-222 MHz band for electronic tracking system). MSTV has filed comments in each of these proceedings urging the Commission to protect adjacent television broadcast operations, principally TV Channel 13, from interference.

Some of these services, if appropriate safeguards are adequately enforced, at least in theory, are compatible with adjacent television operations. AMTS currently operates

to prevent interference to television reception from AMTS transmissions, which take place over waterways and are typically far removed from television stations.[4/] MSTV has also urged the Commission to adopt rigorous interference safeguards in the IVDS proceeding, and has worked with one IVDS proponent, TV Answer, to design an IVDS system with a sufficiently low operating power and duty cycle to prevent interference to television reception. See Comments of MSTV, Gen. Docket No. 91-2 (June 10, 1991).

The amateur operations proposed in the Petition do not share the attributes that allow AMTS and IVDS, with appropriate safeguards, to coexist with adjacent television operations. Unlike typical AMTS stations, ARRL is proposing amateur operations, at least above 218 MHz, within the Grade B contour of a television station, and, unlike AMTS, which operates only on or near certain waterways, are not limited in its geographic scope. The proposed amateur operations are also far different from the low power, very brief and intermittent transmissions contemplated in the IVDS proceeding. In short, an allocation to amateur radio, even on

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[4/] Section 80.475(b)(1) of the Commission's Rules requires AMTS applicants proposing to locate a coast station transmitter within 105 miles of a Channel 13 television station or within 80 miles of a Channel 10 television station or with an antenna height greater than 200 feet to submit an engineering study clearly showing the means of avoiding interference with television reception within the grade B contour. See also Section 80.215(h).

a secondary basis, presents a significant risk of interference to adjacent television operations.

The high risk of interference to television reception should consequently preclude the granting of ARRL's petition. This risk becomes even more apparent upon a close examination of the test results that ARRL cites to support its claim that the proposed operating restrictions will prevent such interference.

In June 1990, ARRL conducted television receiver interference tests to determine the particular operating parameters for amateur radio communications in the 216-220 MHz band that would result in perceptible interference to broadcast television reception. Based on this data, ARRL draws its conclusions concerning the technical restrictions necessary to prevent adjacent channel interference. Petition at ¶ 38. ARRL used five television receivers for these tests; each receiver was "received from a consumer rental business" and had been "previously used." Petition at ¶ 24. The programming used to represent the "desired" television broadcast signal was apparently derived from a videocassette recorder ("VCR"), as depicted on the block diagrams of Figures 1 and 2 of Exhibit A attached to the Petition. One observer was used to view the television picture to detect any perceptible changes caused by the amateur signal operating under different parameters. The observer viewed the television screen at a distance of approximately 5 picture

heights from the television receiver in a room illuminated by a 100-watt incandescent bulb in a shaded fixture. Petition at ¶¶ 24-25; Exhibit A at 2-4.

These tests are flawed for several reasons. The five "previously owned" television receivers are simply an unknown quantity; neither their dates of manufacture nor their technical condition is described. Moreover, the small number of receivers used does not permit a statistical analysis that would provide a median or other necessary percentile data. The use of a VCR as the source of programming also was not suitable for interference testing. Consumer-type VCRs are relatively narrow band devices. Their pictures are consequently not as sharp, or crisply defined, as a picture derived from a professional studio-grade tape recorder or a picture received over the air or via cable. ARRL also offers no description of the type of programming (test pattern or actual programming) used during the tests.[5/] Finally, a room illuminated by a 100-watt bulb in a shaded fixture does not even approximate standard viewing conditions customarily used

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[5/] The type of programming that was used is important in judging the reliability of the test results. Although actual programming would seem to be more representative of the effects to be expected in practice, it is not suitable for test purposes. Depending on programming content, interference effects can be either enhanced or hidden. When testing is done for a succession of interfering signal levels, as was the

in interference testing. See CCIR Recommendation 500 as revised.

Any test to determine the extent of interference to television reception must be based on sound, up-to-date methodology that will provide accurate, reliable information. For example, sound testing procedures were employed in the 1987 study of the susceptibility of television receivers to interference from land mobile transmitters. D.J. Stanks, Receiver Susceptibility Measurements Relating to Interference Between UHF Television and Land Mobile Radio Services, OET Technical Memorandum FCC/OET TM87-1 (February 1987). In this study, a total of 27 receivers, roughly representing the models produced in 1984-85, were employed. The content of the "desired" picture was a test pattern (either a flat, 50 IRE gray scale or color bars) observed under standard viewing conditions. ARRL, however, failed to follow sound testing procedures such as those used in this 1987 FCC study. The Petition's assumptions concerning the extent of interference to television reception and the efficacy of the proposed operating restrictions are consequently thrown into serious doubt.

In a previous proceeding concerning the reallocation of the 220-222 Mhz band, the Commission indicated that, should ARRL petition for a secondary allocation in the 216-220 MHz band, it "would need to ... show how amateur operations could use this band without causing interference ... to adjacent TV

Channel 13 operations in the 210-216 MHz band." Memorandum Opinion and Order, 4 F.C.C. Rcd. 6407, 6410 n. 23 (1989). ARRL has yet to make this showing. The Commission should consequently deny the Petition, or at least postpone action until ARRL makes such a showing with reliable test data.

The Commission must also keep in mind the fact that many locations at which Channel 13 currently is "vacant" will be allocated to advanced television (ATV) usage in the relatively near future. The Commission has declared that a broadcast ATV system standard will be selected in the second quarter of 1993. See First Report and Order, MM Docket No. 87-268, 5 FCC Rcd 5627 (1990). Until that standard is selected, neither the Commission nor the parties will be able to assess the potential for amateur (or other) interference with ATV signals. It is anticipated that at the same time ATV system standards become known in approximately eighteen months, "vacant" VHF and UHF channels also will be allotted to specific markets, thereby permitting a more accurate assessment of the potential for geographic separations from other services. It simply makes no sense at this critical juncture to be stampeded by ARRL into a precipitous and

highly risky allocation of additional spectrum in this band for the amateur radio service.

Respectfully submitted,

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October 23, 1991

CERTIFICATE OF SERVICE

I, Charles W. Logan, do hereby certify that I have, this 23rd day of October, 1991, caused to be sent by first class mail, postage prepaid, copies of the foregoing "Comments of MSTV" to the following:

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